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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,060	02/11/2004	Akiko Hirao	08411.0001	3322

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EXAMINER	
ANGEBRANNDT, MARTIN J	

ART UNIT	PAPER NUMBER
1756	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/775,060	HIRAO ET AL.	
	Examiner	Art Unit	
	Martin J. Angebranndt	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9-12 and 14-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9-12 and 14-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The response of the applicant has been read and given careful consideration. Responses to the arguments of the applicant appear after the first rejection to which they are directed.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-7,9-12 and 14-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1,15 and 16, "polyalylate" should read - - polyarylate- - . This is a typographical/translation error.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-5,9-10,14-17 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wreede et al. '211.

Wreede et al. '211 shows figure2, where moisture barriers (15) are applied to the polymeric substrates (14,12,20 and 22), layers 16 and 24 are norland adhesive and the recording layer is layer 18 and only gelatin based materials or the photopolymer DMP-128 are disclosed for this (2/9-4/5). The disclosed materials are silicon dioxide, tin oxide and indium oxide. (2/31-38). The use of plural substrate provides the required support for the photosensitive layer (2/26+). The hydrophobic substrates can be cellulose acetate, polystyrene, polyester, PMMA, polycarbonate and co-polymers of these (2/9-38).

It would have been obvious to use polystyrene, PMMA or polycarbonate as the substrates, tin oxide, indium oxide or silicon dioxide as the barrier layer material and to use DMP-128 as the photosensitive material in the embodiments of figure 2 and to use DMP-128 as the photosensitive material based upon the disclosure to do so in the reference. The other moisture barrier layers confer an increased reflectivity at these interfaces and are held to meet the reflective layer limitation as the claims do not require that it be a metal layer or describe a minimum reflectivity.

DMP-128 is a photopolymer using a dye sensitized photoinitiation. The benefit ascribed to the coating by the applicant is inherent to the resulting product, which is disclosed as preventing the migration of water, which is a much smaller molecule that those identified in the instant specification, so they would inherently prevent the migration of larger molecules and so meets the recited limitations of the claims as well as the asserted limitations of the arguments which are not recited in the claims. **The examiner notes that these barrier materials are the same materials recited in the claims.**

6. Claims 1-7,9-12,14-17 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wreede et al. '211, in view of Wreede et al. '409 or Kurland et al. '970.

Kurland et al. '970 teaches a polycarbonate substrate provided with 200 nm (0.2 microns) glass as the moisture barrier and a dichromated gelatin (a naturally occurring polymer) as the photosensitive layer is described in example 2. The glasses act as a barrier to moisture. (3/20-4/2). Substrate materials include cellulose acetate, polycarbonate, PMMA, polyester and polystyrene. (2/61-63).

Wreede et al. '409 teach in figure 1 has a plastic substrate, a moisture barrier layer 11a of 100-1000 nm silicon nitride, a layer 11b of 100-500 nm silicon dioxide, the organic recording layer (12), layer 13a or parylene, layer 13b of 200-500 nm silicon nitride, layer 13c of 100-200 nm silicon dioxide, layer 15a, of silicon dioxide, layer 15b of silicon nitride and layer 15c of silicon dioxide. (3/26-5/68). The recording layers are dichromated gelatin, photographic emulsions, diazo gelatin, and other gelatin based materials. (6/41-65). These inorganic materials acts as moisture barriers. (3/53-4/30). Substrate materials include cellulose acetate, polycarbonate, PMMA, polyester and polystyrene. (3/18-20)

In addition to the basis above, the address the embodiments bounded by the claims which include thicknes limitation the examiner holds that it would have been obvious to one skilled in the art to modify the cited example of Wreede et al. '211 by using thicknesses known to be useful in forming moisture barriers in holographic recording media, such as the 100-500 or 200 nm disclosed by Wreede et al. '409 or Kurland et al. '970. Further the examiner holds to address other embodiments where silicon nitrides are used as moisture barrier layer that it would have been obvious to silicon nitride as the barrier material in place or in addition to silicon oxide based upon the teachings of Wreede et al. '409.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). As discussed above, the inorganic materials inherently will prevent migration of water or other molecules through them and arguing this is not the case is incongruent with the disclosure and the recitation of these

materials in the claims. No further response is warranted beyond that presented above as no further arguments were directed at this rejection beyond those addressed above.

7. Claims 1-7,9-12,14-17 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wreede et al. '211, in view of Wreede et al. '409 or Kurland et al. '970, further in view of Lawrence et al. '333 or Mishima et al. '995.

Lawrence et al. '333 teach various substrate materials for holograms including polycarbonates, polyether imides, polyolefins (linear and cyclic) polystyrene, PMMA, polyphenylene ethers and the like [0022].

Mishima et al. '995 teaches moisture barrier materials including metals, metal oxides, such as MgO, SiO, SiO_2, Al_2O_3, GeO, NiO, CaO, BaO, TiO_2 and fluorides such as MgF_2, LiF, AlF_3 and CaF_2 [0110] used in optical display devices.

To address the embodiments where the substrate materials and moisture barrier materials are different from those disclosed in Wreede et al. '211,Wreede et al. '409 or Kurland et al. '970, the examiner holds that it would have been obvious to one skilled in the art to modify the combination of Wreede et al. '211 with Wreede et al. '409 or Kurland et al. '970 by using other known moisture barrier materials such as the MgO, SiO, SiO_2, Al_2O_3, GeO, NiO, CaO, BaO, TiO_2, MgF_2, LiF, AlF_3 and CaF_2 taught by Mishima et al. '995 based upon the disclosure of equivalence and/or the other substrate materials such as polycarbonates, polyether imides, polyolefins (linear and cyclic) polystyrene, PMMA or polyphenylene ethers by Lawrence et al. '333 as useful form holographic recording materials.

8. Claims 1-5,9-10 and 14-20are rejected under 35 U.S.C. 103(a) as being unpatentable over Horigoma et al. JP 2002-123949 (machine translation provided), in view of Wreede et al. '211.

Horigoma et al. JP 2002-123949 teaches a holographic recording medium shown in figures 1 and 6, where the layer 5 is a reflective layer, layer 4 is a transparent substrate (in figure 6 it is grooved), layer 3 is a photopolymer and layer 2 is a transparent substrate. [0033].

It would have been obvious to one skilled in the art to modify the medium exemplified by figure 6 of Horigoma et al. JP 2002-123949 by adding moisture barrier layers, such as taught by Wreede et al. '211 to prevent moisture damage and shifting of the replay. Further it would have been obvious to one skilled in the art to add the other substrates and adhesive layers to increase the stability/rigidity as discussed by Wreede et al. '211.

The basis for the addition is the direction in Wreede et al. '211 concerning the problems with wavelength shifting in the resulting holograms and the solution promoted by Wreede et al. for dealing with it with a photopolymer composition (DMP-128). No further response is warranted beyond that presented above as no further arguments were directed at this rejection beyond those addressed above.

9. Claims 1-7,9-12 and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horigoma et al. JP 2002-123949, in view of Wreede et al. '211 combined with Wreede et al. '409 or Kurland et al. '970.

In addition to the basis provided above, it would have been obvious to one skilled in the art to modify the holographic recording media rendered obvious by the combination of Horigoma et al. JP 2002-123949 and Wreede et al. '211 by using thicknesses known to be useful in forming moisture barriers in holographic recording media, such as the 100-500 or 200 nm disclosed by Wreede et al. '409 or Kurland et al. '970.

There are no defects as addressed above in the response above.

10. Claims 1-7,9-12 and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horigoma et al. JP 2002-123949, in view of Wreede et al. '211 combined with Wreede et al. '409 or Kurland et al. '970, further in view of Lawrence et al. '333 or Mishima et al. '995

To address the embodiments where the substrate materials and moisture barrier materials are different from those disclosed in Wreede et al. '211,Wreede et al. '409 or Kurland et al. '970, the examiner holds that it would have been obvious to one skilled in the art to modify the combination of Horigoma et al. JP 2002-123949, with Wreede et al. '211, Wreede et al. '409 or Kurland et al. '970 by using other known moisture barrier materials such as the MgO, SiO, SiO_2, Al_2O_3, GeO, NiO, CaO, BaO, TiO_2, MgF_2, LiF, AlF_3 and CaF_2 taught by Mishima et al. '995 based upon the disclosure of equivalence and/or the other substrate materials such as polycarbonates, polyether imides, polyolefins (linear and cyclic) polystyrene, PMMA or polyphenylene ethers by Lawrence et al. '333 as useful form holographic recording materials.

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 1-7,9-12 and 14-20 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-11 of U.S. Patent No. 7031037 in view of Wreede et al. '211 combined with Wreede et al. '409 or Kurland et al. '970.

It would have been obvious to one skilled in the art to modify the medium claimed in U.S. Patent No. 7031037 by adding moisture barrier layers, such as taught by Wreede et al. '211 and using thicknesses known to be useful in forming moisture barriers in holographic recording media, such as the 100-500 or 200 nm disclosed by Wreede et al. '409 or Kurland et al. '970 with a reasonable expectation of preventing moisture damage and shifting of the replay of the holograms.

There are no defects as addressed above in the response above.

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebranndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Martin J Angebranndt
Primary Examiner
Art Unit 1756

06/01/07